

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 1. (Currently amended): An apparatus comprising:
2 a sender including
3 a first controller configured to ~~identify a forward~~receive a data item
4 including a transmit data portion and a retain data portion;
5 a first tag generator configured to generate a first tag and associate the first
6 tag with the retain data portion;
7 a first transmitter configured to send the transmit data portion, but not the
8 first tag, to a target;
9 wherein the target includes
10 a first receiver configured to receive the transmit data portion sent by the
11 sender;
12 a second controller configured to identify return data ~~a return portion~~
13 corresponding to the transmit data portion;
14 a second tag generator configured to independently generate ~~the a second~~
15 tag and associate the second tag with the return data portion;
16 a second transmitter configured to send the return data ~~portion~~ and the
17 second tag to the sender;
18 wherein the sender includes[[:]]
19 a second receiver configured to receive the return data ~~portion~~ and the
20 second tag; and
21 wherein the first controller is configured to identify the retain data portion using
22 the second tag and associate the return data ~~portion~~ with the retain data portion to create a
23 reverse item.

1 2. (Currently amended): The apparatus of claim 1, further comprising:
2 means for initializing the first and second tag generators to generate ~~the~~
3 ~~same~~identical tags in ~~the same~~identical order.

1 3. (Currently amended): The apparatus of claim 2, wherein each of the first
2 and second tag generators includes a buffer and means for initializing comprises:
3 means for loading each buffer with a set of tags such that both buffers contain ~~the~~
4 ~~same~~identical tags in ~~the same~~identical order and no tag in the set is the same as any other tag in
5 the set.

1 4. (Currently amended): The apparatus of claim 3, wherein the first tag
2 generator is configured to remove first the tag from the buffer.

1 5. (Currently amended): The apparatus of claim 4, wherein the first
2 controller is configured to return the first tag to the first tag generator after associating the return
3 ~~data portion~~ with the retain data portion.

1 6. (Currently amended): The apparatus of claim 5, wherein the second
2 controller is configured to return the second tag to the second tag generator after sending the
3 return data ~~portion~~.

1 7. (Original): The apparatus of claim 1, wherein the sender and target are
2 different layers of a multi-layer switch coupling a processor to a memory, the forward item
3 includes a memory transaction, and the reverse item includes a result of the memory transaction.

1 8. (Original): The apparatus of claim 7, wherein the processor is a graphics
2 processor.

1 9. (Original): The apparatus of claim 1, wherein the sender is a processor
2 and the target is a layer in a multiple-layer switch having a plurality of layers.

1 10. (Original): The apparatus of claim 9, wherein the processor is a graphics
2 processor.

1 11. (Original): The apparatus of claim 2, wherein each of the first and second
2 tag generators includes a counter and means for initializing comprises:
3 means for setting both counters to the same value.

1 12. (Original): The apparatus of claim 11, wherein means for associating a
2 tag comprises:
3 means for incrementing the counter; and
4 means for associating the value output by the counter with the tag.

1 13. (Original): The apparatus of claim 11, wherein the counters are
2 incremented continuously according to a clock signal and each tag generator is configured to
3 associate the value output by the counter with the tag.

1 14. (Currently amended): An apparatus comprising:
2 a controller configured to ~~identify a forward item including~~ receive data
3 comprising a transmit data portion and a retain data portion;
4 a tag generator configured to associate a tag with the retain data portion;
5 a transmitter configured to send the transmit data portion, but not the tag, to a
6 target that identifies a return data ~~portion~~ corresponding to the transmit data portion,
7 independently generates ~~the a second~~ tag, and associates the second tag with the return
8 data ~~portion~~; and
9 a receiver configured to receive the return data ~~portion~~ and the second tag from
10 the target;
11 wherein the controller is further configured to identify the retain data portion
12 using the tag and associate the return data with the retain data portion to create a reverse item.

1 15. (Currently amended): An apparatus comprising:
2 a receiver configured to receive a transmit data portion of ~~an a~~ data item from a
3 sender that associates a tag with a retain data portion of the data item and ~~sends to send~~ the
4 transmit data portion, but not the tag;
5 a controller configured to identify ~~a return portion~~ return data corresponding to the
6 transmit data portion;
7 a tag generator configured to independently generate ~~the a~~ a second tag and
8 associate the second tag with the return data; and ~~portion~~;
9 a transmitter configured to send the return data ~~portion~~ and the second tag to the
10 sender, wherein the sender identifies the retain data portion using the second tag and associates
11 the return data ~~portion~~ with the retain data portion to create a reverse item.

16-21. (Canceled)

1 22. (Currently amended): A method comprising:
2 at a sender,
3 ~~identifying a forward~~ receiving a data item including a transmit data
4 portion and a retain data portion;
5 generating a tag;
6 associating the tag with the retain data portion;
7 sending the transmit data portion, but not the tag, to a target;
8 at the target,
9 receiving the transmit data portion;
10 identifying ~~a return~~ data ~~portion~~ corresponding to the transmit data
11 portion;
12 independently generating ~~the a~~ a second tag;
13 associating the second tag with the return data ~~portion~~;
14 sending the return data ~~portion~~ and the second tag to the sender;
15 at the sender;

16 receiving the return data portion and the second tag;
17 identifying the retain data portion using the second tag; and
18 associating the return data portion with the retain data portion to create a
19 reverse item.

1 23. (Currently amended): The method of claim 22, ~~wherein the tag is~~
2 ~~independently generated by a first tag generator at the sender and by a second tag generator at~~
3 ~~the target~~, further comprising:
4 initializing the first and second tag generators to generate ~~the same~~identical tags
5 in ~~the same~~identical order.

1 24. (Currently amended): The method of claim 23, wherein each of the first
2 and second tag generators is a buffer and the initializing comprises:
3 loading each buffer with a set of tags such that both buffers contain ~~the~~
4 ~~same~~identical tags in ~~the same~~identical order and no tag in the set is the same as any other tag in
5 the set.

1 25. (Original): The method of claim 24, wherein associating a tag comprises:
2 removing the tag from the buffer.

1 26. (Currently amended): The method of claim 25, further comprising:
2 returning the tag to the first tag generator after associating the return data portion
3 with the retain data portion.

1 27. (Currently amended): The method of claim 26, further comprising:
2 returning the second tag to the second tag generator after sending the return
3 data portion.

1 28. (Original): The method of claim 22, wherein the sender and target are
2 different layers of a multi-layer switch coupling a processor to a memory, the forward item
3 includes a memory transaction, and the reverse item includes a result of the memory transaction.

1 29. (Original): The method of claim 28, wherein the processor is a graphics
2 processor.

1 30. (Original): The method of claim 22, wherein the sender is a processor and
2 the target is a layer in a multiple-layer switch having a plurality of layers.

1 31. (Original): The method of claim 30, wherein the processor is a graphics
2 processor.

1 32. (Original): The method of claim 23, wherein each of the first and second
2 tag generators is a counter and initializing comprises:
3 setting both counters to the same value.

1 33. (Original): The method of claim 32, wherein associating a tag comprises:
2 incrementing the counter; and
3 associating the value output by the counter with the tag.

1 34. (Original): The method of claim 32, wherein the counters are incremented
2 continuously according to a clock signal and associating a tag comprises:
3 associating the value output by the counter with the tag.

1 35. (Currently amended): A method comprising:
2 ~~identifying a forward~~receiving a data item including a transmit data portion and a
3 retain data portion;
4 associating a tag with the retain data portion;
5 sending the transmit data portion, but not the tag, to a target that identifies a return
6 data portion corresponding to the transmit data portion, independently generates ~~the a second~~ a second tag,
7 and associates the second tag with the return data portion;
8 receiving the return data portion and the second tag from the target;
9 identifying the retain data portion using the second tag; and

10 associating the return data portion with the retain data portion to create a reverse
11 item.

1 36. (Currently amended): A method comprising:
2 receiving a transmit data portion of ~~an~~ a data item from a sender that associates a
3 tag with a retain data portion of the data item and sends the transmit data portion, but not the tag;
4 identifying ~~a~~ return data portion corresponding to the transmit data portion;
5 independently generating ~~the~~ a second tag;
6 associating the second tag with the return data portion;
7 sending the return data portion and the second tag to the sender, wherein the
8 sender identifies the retain data portion using the second tag and associates the return data
9 portion with the retain data portion to create a reverse item.

37-42. (Canceled)

1 43. (Currently amended): A computer program product, tangibly stored on a
2 computer-readable medium, comprising instructions operable to cause a programmable processor
3 to:

4 at a sender,
5 ~~identify a forward~~ receive a data item including a transmit data portion and
6 a retain data portion;
7 generate a tag;
8 associate the tag with the retain data portion;
9 send the transmit data portion, but not the tag, to a target;
10 at the target,
11 receive the transmit data portion;
12 identify ~~a~~ return data portion corresponding to the transmit data portion;
13 independently generate ~~the~~ a second tag;
14 associate the second tag with the return data portion;
15 send the return data portion and the second tag to the sender;

16 at the sender;
17 receive the return data portion and the second tag;
18 identify the retain data portion using the second tag; and
19 associate the return data portion with the retain data portion to create a
20 reverse item.

1 44. (Currently amended): The computer program product of claim 43,
2 ~~wherein the tag is independently generated by a first tag generator at the sender and by a second~~
3 ~~tag generator at the target,~~ further comprising instructions operable to cause a programmable
4 processor to:
5 initialize the first and second tag generators to generate ~~the same~~identical tags in
6 ~~the same~~identical order.

1 45. (Currently amended): The computer program product of claim 44,
2 wherein each of the first and second tag generators is a buffer and instructions operable to cause
3 a programmable processor to initialize comprise instructions operable to cause a programmable
4 processor to:
5 load each buffer with a set of tags such that both buffers contain ~~the same~~identical
6 tags in ~~the same~~identical order and no tag in the set is the same as any other tag in the set.

1 46. (Original): The computer program product of claim 45, wherein
2 instructions operable to cause a programmable processor to associate a tag comprise instructions
3 operable to cause a programmable processor to:
4 remove the tag from the buffer.

1 47. (Currently amended): The computer program product of claim 46, further
2 comprising instructions operable to cause a programmable processor to:
3 return the tag to the first tag generator after associate the return data portion with
4 the retain data portion.

1 48. (Currently amended): The computer program product of claim 47, further
2 comprising instructions operable to cause a programmable processor to:
3 return the second tag to the second tag generator after send the return ~~dataportion~~.

1 49. (Original): The computer program product of claim 43, wherein the
2 sender and target are different layers of a multi-layer switch coupling a processor to a memory,
3 the forward item includes a memory transaction, and the reverse item includes a result of the
4 memory transaction.

1 50. (Original): The computer program product of claim 49, wherein the
2 processor is a graphics processor.

1 51. (Original): The computer program product of claim 43, wherein the
2 sender is a processor and the target is a layer in a multiple-layer switch having a plurality of
3 layers.

1 52. (Original): The computer program product of claim 51, wherein the
2 processor is a graphics processor.

1 53. (Original): The computer program product of claim 44, wherein each of
2 the first and second tag generators is a counter and instructions operable to cause a
3 programmable processor to initialize comprise instructions operable to cause a programmable
4 processor to:
5 set both counters to the same value.

1 54. (Original): The computer program product of claim 53, wherein
2 instructions operable to cause a programmable processor to associate a tag comprise instructions
3 operable to cause a programmable processor to:
4 increment the counter; and
5 associate the value output by the counter with the tag.

1 55. (Original): The computer program product of claim 53, wherein the
2 counters are incremented continuously according to a clock signal and instructions operable to
3 cause a programmable processor to associate a tag comprise instructions operable to cause a
4 programmable processor to:

5 associate the value output by the counter with the tag.

1 56. (Currently amended): A computer program product, tangibly stored on a
2 computer-readable medium, comprising instructions operable to cause a programmable processor
3 to:

4 ~~identify a forward~~receive a data item including a transmit data portion and a retain
5 data portion;

6 associate a tag with the retain data portion;

7 send the transmit data portion, but not the tag, to a target that identifies a return
8 data portion corresponding to the transmit data portion, independently generates ~~the a second~~ tag,
9 and associates the second tag with the return data portion;

10 receive the return data portion and the second tag from the target;

11 identify the retain data portion using the second tag; and

12 associate the return data portion with the retain data portion to create a reverse
13 item.

1 57. (Currently amended): A computer program product, tangibly stored on a
2 computer-readable medium, comprising instructions operable to cause a programmable processor
3 to:

4 receive a transmit data portion of ~~an a data~~ item from a sender that associates a tag
5 with a retain data portion of the data item and sends the transmit data portion, but not the tag;

6 identify ~~a return data portion~~ corresponding to the transmit data portion;

7 independently generate ~~the a second~~ tag;

8 associate the second tag with the return data portion;

- 9 send the return data portion and the second tag to the sender, wherein the sender
10 identifies the retain data portion using the second tag and associates the return data portion with
11 the retain data portion to create a reverse item.

58-63. (Canceled)